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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/588,620	11/20/2006	Marion Sobe	RWS-P70	7226

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EXAMINER	
SALONE, BAYAN	

ART UNIT	PAPER NUMBER
3726	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/588,620	SOBE ET AL.	
	Examiner	Art Unit	
	BAYAN SALONE	3726	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *12-33* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *12-33* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *08/07/2006*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 12 and 13 are rejected under 35 U.S.C. 102(b) as being anticipated by Buschsiweke et al. (US Patent No. 5,972,134).

3. Regarding Claims 12 and 13, Buschsiweke et al. discloses a method of producing a component for vehicle bodies from a hardenable steel plate, said plate being heated homogeneously to a temperature of between 900°C and 950° C (austenitizing range) (Col. 4, Lines 40-43), after which the plate (13) is shaped in a compression molding die (15) to form a shaped component (8, 9) and then the shaped component (8, 9) is quench hardened and tempered in the compression molding tool (15) (Col. 4, Lines 44-51, Fig. 2).

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

5. Claims 12, 13, 17-21, 23, 24 and 28-32 are rejected under 35 U.S.C. 102(a) as being anticipated by Sumitomo Metal IND LTD (JP Patent Document 2004-353026).

6. Regarding Claims 12 and 13, Sumitomo discloses a method for producing a high strength hot-formed member for vehicle bodies from a high strength steel sheet (note, physical properties of the produced component could allow it to be used to armor plate a motor vehicle, at least to some degree), which comprises the steps of: producing sheet metal pre-forms from hardenable steel by the steps of: thermally pre-treating a steel sheet blank by selecting a heating speed and a heating temperature (AC_3) until an austenitic state or partly austenitic state dependent on alloy content, is reached resulting in an austenitized steel sheet blank (Page 5, Par. 0024 of the Japanese translation); carrying out hot forming and quench hardening of the austenitized steel sheet blank in one operation, by the steps of: forming the austenitized steel sheet blank in a press die within a time of at most 90 seconds (Page 5, Par. 0024 and Par. 0025, Lines 1-5 of the Japanese translation) resulting in a formed component; holding the formed component in full-area contact with the press die resulting in cooling of the formed component in the press die being in a closed state; and performing the cooling of the formed component in the closed press die at a cooling rate corresponding at least to a material-specific critical cooling rate (25-150° C/s) (Page 5, Par. 0026, Par. 0027-Page 6, Par. 0027, Page 6, Par. 0031-Page 7, Par. 0032 of the Japanese translation); wherein the hot-formed member is formed from a sheet of hardenable and maraging steel (Page 6, Par. 0029 of the Japanese translation).

7. Regarding Claim 17, Sumitomo discloses a method according to claim 12, which further comprises forming the austenitized steel sheet blank at an austenitizing temperature dependent on the alloy content or at temperatures at which the steel sheet

blank is in the partly austenitized state (Page 3, Par. 0013 and Page 5, Par. 0024 of the Japanese translation).

8. Regarding Claim 18, Sumitomo discloses a method according to claim 12, which further comprises, after the forming step, holding the press die closed for a period of time of at least 50 to 500 seconds to achieve a desired cooling temperature (Page 6, Par. 0030 of the Japanese translation).

9. Regarding Claims 19 and 20, Sumitomo discloses a method according to claim 12, which further comprises cooling the press die with water (Page 6, Par. 0032-Page 7, Par. 0032 of the Japanese translation).

10. Regarding Claim 21, Sumitomo discloses a method according to claim 23, which further comprises subjecting the formed component after the cooling step, to a final heat treatment in a form of expansion and/or tempering (Page 5, Par. 0027-Page 6, Par. 0027 of the Japanese translation).

11. Regarding Claims 23 and 24, Sumitomo discloses a method for producing a high strength hot-formed member for vehicle bodies from a high strength steel sheet (note, physical properties of the produced component could potentially allow it to be used to armor plate a motor vehicle), which comprises the steps of: producing sheet metal pre-forms from hardenable steel by the steps of: thermally pre-treating a steel sheet blank by selecting a heating speed and a heating temperature (AC_3) at least until an austenitic state or partly austenitic state, dependent on an alloy content, is reached resulting in an austenitized steel sheet blank state (Page 3, Par. 0013 and Page 5, Par. 0024 of the Japanese translation); carrying out hot forming and quench hardening of the austenitic

steel sheet blank in one operation, by the steps of: cooling a press die to at least approximately 70° C (the die molds are held until reaching an ordinary temperature of about several tens ° C to cool the press-forming member) (Page 6, Par. 0031) (Page 5, Par. 0026, Par. 0027-Page 6, Par. 0027, Page 6, Par. 0031-Page 7, Par. 0032 of the Japanese translation); forming the austenitized steel sheet blank still in the austenitic state or the partly austenitic state in the press die resulting in a formed component; holding the formed component in full-area contact with the press die being a closed press die; and performing further cooling of the formed component without calibration, but with a pressing force being maintained, for dissipating heat from the formed component in the press die; wherein the member is formed from a sheet of hardenable and maraging steel (Page 5, Par. 0027-Page 7, Par. 0032 of the Japanese translation).

12. Regarding Claim 28, Sumitomo discloses a method according to claim 23, which further comprises forming the austenitized steel sheet blank at an austenitizing temperature dependent on the alloy content or at temperatures at which the steel sheet blank is in the partly austenitized state (Page 3, Par. 0013 and Page 5, Par. 0024 of the Japanese translation).

13. Regarding Claim 29, Sumitomo discloses a method according to claim 23, which further comprises, after the forming step, holding the press die closed for a period of time of at least 50 to 500 seconds to achieve a desired cooling temperature (Page 6, Par. 0030 of the Japanese translation).

14. Regarding Claims 30 and 31, Sumitomo discloses a method according to claim 23, which further comprises cooling the press die with water (Page 6, Par. 0032-Page 7, Par. 0032 of the Japanese translation).

15. Regarding Claim 32, Sumitomo discloses a method according to claim 23, which further comprises subjecting the formed component after the cooling step, to a final heat treatment in a form of expansion and/or tempering (Page 5, Par. 0027-Page 6, Par. 0027 of the Japanese translation).

Claim Rejections - 35 USC § 103

16. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

17. Claims 14, 15, 17, 21 and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Buschsiweke et al. (US Patent No. 5,972,134), in view of Bahmiller (US Patent No. 6,723,182).

18. Regarding Claims 14, The aforementioned rejection as applied to claim 12 remains as previously applied. Buschsiweke et al. does not disclose forming the steel sheet blank with an initial hardness, during hardening in hardening oil, to be higher than 45 HRC or with a hardness after artificial ageing to be higher than 45 HRC.

Bahmiller discloses a method of forming an armor plate from a sheet of hardenable and maraging steel wherein the steel sheet blank is formed with an initial

hardness, during hardening in hardening oil, to be higher than 45 HRC or with a hardness after artificial ageing to be higher than 45 HRC (Col. 4, Lines 1-4 and Col. 4 Lines 39-43). It would have been obvious to one of ordinary skill in the art at the time of invention to form the structural member of Buschsiweke et al. with an initial hardness, during hardening in hardening oil, to be higher than 45 HRC or with a hardness after artificial ageing to be higher than 45 HRC as disclosed by Bahmiller, for the benefit of evaluating the resistance to softening of the steel member after tempering.

19. Regarding Claim 15, the aforementioned rejection as applied to claims 12 remains as previously applied. Buschsiweke et al. does not disclose wherein during heating to the heating temperature being an austenitizing temperature, the alloy content being alloying elements are dissolved predominantly in austenite.

Bahmiller discloses wherein during heating to the heating temperature being an austenitizing temperature, the alloy content being alloying elements are dissolved predominantly in austenite (Col. 3, Lines 39-43). It would have been obvious to one of ordinary skill in the art at the time of invention that the alloy content of the alloying elements of the hot-formed member of Buschsiweke et al. are combined and dissolved predominantly in austenite as disclosed by Bahmiller to contribute to the steel's properties of increased strength and resistance to heat softening.

20. Regarding Claim 17, the aforementioned rejection as applied to claims 12 remains as previously applied.

Bahmiller discloses wherein forming the austenitized steel sheet blank at an austenitizing temperature dependent on the alloy content or at temperatures at which

the steel sheet blank is in the partly austenitized state (Col. 3, Lines 38-52 and Col. 3, Line 66-Col. 4, Line 1).

21. Regarding Claim 21, the aforementioned rejection as applied to claims 12 remains as previously applied.

Bahmiller discloses wherein subjecting the formed component after the cooling step, to a final heat treatment in a form of expansion and/or tempering, for the benefit evaluating the resistance to softening of the steel (Col. 4, Lines 39-50). It would have been obvious to one of ordinary skill in the art at the time of invention to subject the formed component after the cooling step, to a final heat treatment in a form of expansion and/or tempering as disclosed by Bahmiller, to evaluate the resistance to softening of the steel.

22. Regarding Claim 22, the aforementioned rejection as applied to claims 12 remains as previously applied. Buschsiweke et al. does not disclose subjecting the formed component after the cooling step to a further step of retreating by tempering, hardening and tempering, age hardening or artificial ageing.

Bahmiller discloses subjecting the formed component after the cooling step to a further step of retreating by tempering, hardening and tempering, age hardening or artificial ageing (Col. 4, Lines 31-38). It would have been obvious to one of ordinary skill in the art at the time of invention to retreat the hot-formed structural member of Sumitomo by tempering, hardening and tempering, age hardening or artificial ageing as disclosed by Bahmiller, for the benefit of realizing a maximum hardness of the steel member.

23. Claims 14, 15, 22, 25, 26 and 33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sumitomo Metal IND LTD (JP Patent Document 2004-353026), in view of Bahmiller (US Patent No. 6,723,182).

24. Regarding Claims 14 and 25, the aforementioned rejection as applied to claims 12 and 23 remains as previously applied. Sumitomo does not disclose forming the steel sheet blank with an initial hardness, during hardening in hardening oil, to be higher than 45 HRC or with a hardness after artificial ageing to be higher than 45 HRC. Sumitomo does however disclose the hot formed structural member having an HV hardness of 100 after tempering).

Bahmiller discloses a method of forming an armor plate from a sheet of hardenable and maraging steel wherein the steel sheet blank is formed with an initial hardness, during hardening in hardening oil, to be higher than 45 HRC or with a hardness after artificial ageing to be higher than 45 HRC (Col. 4, Lines 1-4 and Col. 4 Lines 39-43). It would have been obvious to one of ordinary skill in the art at the time of invention to form the structural member of Sumitomo with an initial hardness, during hardening in hardening oil, to be higher than 45 HRC or with a hardness after artificial ageing to be higher than 45 HRC as disclosed by Bahmiller, as an alternative unit of measure to the HV hardness, for the benefit of evaluating the resistance to softening of the steel member after tempering.

25. Regarding Claims 15 and 26 the aforementioned rejection as applied to claims 12 and 23 remains as previously applied. Sumitomo does not disclose wherein during

heating to the heating temperature being an austenitizing temperature, the alloy content being alloying elements are dissolved predominantly in austenite.

Bahmiller discloses wherein during heating to the heating temperature being an austenitizing temperature, the alloy content being alloying elements are dissolved predominantly in austenite (Col. 3, Lines 39-43). It would have been obvious to one of ordinary skill in the art at the time of invention that the alloy content of the alloying elements of the hot-formed member of Sumitomo are combined and dissolved predominantly in austenite as disclosed by Bahmiller to contribute to the steel's properties of increased strength and resistance to heat softening.

26. Regarding Claims 22 and 33, the aforementioned rejection as applied to claims 12 and 23 remains as previously applied. Sumitomo does not disclose subjecting the formed component after the cooling step to a further step of retreating by tempering, hardening and tempering, age hardening or artificial ageing.

Bahmiller discloses subjecting the formed component after the cooling step to a further step of retreating by tempering, hardening and tempering, age hardening or artificial ageing (Col. 4, Lines 31-38). It would have been obvious to one of ordinary skill in the art at the time of invention to retreat the hot-formed structural member of Sumitomo by tempering, hardening and tempering, age hardening or artificial ageing as disclosed by Bahmiller, for the benefit of realizing a maximum hardness of the steel member.

27. Claim 16 is rejected under 35 U.S.C. 103(a) as being unpatentable over Buschsiweke et al.), in view of Leap (US Patent No. 6,723,182).

28. Regarding Claim 16, the aforementioned rejection as applied to claim 12 remains as previously applied. Buschsiweke et al. does not disclose selecting a heat treatment time and the heating temperature for austenitization in dependence on a component material and material thickness to minimize scaling, skin decarburization and grain growth. Although Buschsiweke et al. does not explicitly disclose the selected heat treatment time and heating temperature utilized to hot form the structural member minimizes scaling, skin decarburization and grain growth, the examiner takes official notice that it is well known in the art that hot forming steel members using processes providing good toughness and austenitization at elevated levels provides carburization and minimizes scaling.

Leap discloses a method of processing a steel component by hot forming to increase grain coarsening and carburization (Col. 1, Lines14-19, Col. 2, Lines 17-32). It would have been obvious to one of ordinary skill in the art at the time of invention that the process of Buschsiweke et al. would minimize scaling, provide increased grain coarsening and carburization of the hot-formed steel member as disclosed by Leap since the steel structural member is hot formed and austenitiized at elevated temperatures.

29. Claims 16 and 27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sumitomo Metal IND LTD (JP Patent Document 2004-353026), in view of Leap (US Patent No. 6,723,182).

30. Regarding Claims 16 and 27, the aforementioned rejection as applied to claims 12 and 23 remains as previously applied. Sumitomo does not disclose selecting a heat

treatment time and the heating temperature for austenitization in dependence on a component material and material thickness to minimize scaling, skin decarburization and grain growth. Although Sumitomo does not explicitly disclose the selected heat treatment time and heating temperature utilized to hot form the structural member minimizes scaling, skin decarburization and grain growth, the examiner takes official notice that it is well known in the art that hot forming steel members using processes providing good toughness and austenitization at elevated levels provides carburization and minimizes scaling.

Leap discloses a method of processing a steel component by hot forming to increase grain coarsening and carburization (Col. 1, Lines14-19, Col. 2, Lines 17-32). It would have been obvious to one of ordinary skill in the art at the time of invention that the process of Sumitomo would minimize scaling, provide increased grain coarsening and carburization of the hot-formed steel member as disclosed by Leap since the steel structural member is hot formed and austenitiized at elevated temperatures.

31. Claims 19 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Buschsiweke et al.), in view of Bobbert et al. (US Patent No. 5,458,704).

32. Regarding Claims 19 and 20, the aforementioned rejection as applied to claim 12 remains as previously applied. Buschsiweke et al. does not disclose cooling the press die with a coolant, selected from a group of water, ammonia compressed air, and a combination of at least water, ammonia and compressed air.

Bobbert et al. discloses cooling the component with compressed water (Col. 2, Lines 52-67). It would have been obvious to one of ordinary skill in the art at the time of

invention to cool the press die with compressed water as disclosed by Bobbert to optimally form the hardened steel component.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to BAYAN SALONE whose telephone number is (571)270-7739. The examiner can normally be reached on M-Th, 7:30 AM-5:00 PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Bryant can be reached on (571)-272-4526. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/BAYAN SALONE/

Examiner, Art Unit 3726

/DAVID P. BRYANT/

Supervisory Patent Examiner, Art Unit 3726